

In re Patent Application of  
**ESPOSITO CORCIONE ET AL.**  
Serial No. 10/696,741  
Filing Date: October 29, 2003

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In the Specification:

Please replace paragraph [0004] on page 2 with the following rewritten paragraph:

Euro III (98/69): vehicles registered from January 1, 2001 comply with this directive. Besides the problem of pollutant emission, which is lower than the previous ones, this directive introduces the requirement of an on board autodiagnostic system OBD (On Board Diagnostic), indicating any malfunction. It is compulsory to do the repair within a determined number of kilometers, otherwise harsh sanctions are applied. These directives, which are valid for ~~petrol~~ gasoline cars, will come into force in 2003 for diesel engines.

Please replace paragraph [0017] on page 4 with the following rewritten paragraph:

The torque distribution methods according to the prior art do not ensure a global optimization of ~~radiant-fluxes~~ power output but only an optimization linked to contingent situations. To obtain a global optimization, not only the path that will be covered by the vehicle but also all the driving conditions that will appear should be previously known in principle.

Please replace paragraph [0019] on page 5 with the following rewritten paragraph:

~~The technical problem underlying~~ An object of the present invention is to provide an electronic torque control and distribution system, particularly for hybrid propulsion

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vehicles, having such structural and functional characteristics that overcome the limits of the prior art approaches discussed above by improving the hybrid propulsion vehicle performances and allowing smaller dimension propulsion systems to be formed.

Please replace paragraph [0020] on page 5 with the following rewritten paragraph:

The idea underlying the present invention is to manage in an innovative way the ~~radiant fluxes~~ power output used for the propulsion of hybrid vehicles and to calculate the torque contributions of the two drive engines according to a predetermined number of operation parameters. These parameters may be associated with the vehicle and their respective engines. The two drive engines are the internal combustion engine and the electric engine.

Please replace paragraph [0032] on page 7 with the following rewritten paragraph:

With reference to the drawings, and particularly to the examples of Figures 3 and 4, a vehicle 10 equipped with a parallel configuration hybrid propulsion system 7 will now be described. The electronic torque control and distribution system 11 formed according to the present invention is applied to the vehicle 10. Advantageously, the hybrid configuration of Figure 3 is capable of combining the advantages of the two main types (series and parallel) of hybrid vehicles, as a result of an innovative management of ~~radiant fluxes~~ power output.

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Please replace paragraph [0034] on page 7 with the following rewritten paragraph:

In Figure 4 the tank 5 and the batteries 6 are positioned near the vehicle's 10 rear axle. This positioning is for illustrative purposes, and other locations within the vehicle 10 may be used. Similarly, the engine 1 and the electric engine 3 are shown near the vehicle's 10 front axle.

This positioning is also for illustrative purposes, and other locations ~~with in~~ within the vehicle may be used. The front axle is shown in the example of Figure 3 because this arrangement has been preferred to ensure a proper balance distribution in the vehicle 10.

Please replace paragraph [0040] on page 9 with the following rewritten paragraph:

The control unit 4 drives the operation as a generator or as a draft gear of the internal combustion engine 1, depending on whether the required mechanical power is lower or higher than the power delivered by the diesel engine 1. The control unit 4 also controls the power ~~fluxes~~ output to be distributed among the main components (electric machine, diesel engine and storage batteries) to optimize the overall energy efficiency of the whole system.

Please replace paragraph [0049] on page 11 with the following rewritten paragraph:

The control system 11 as a whole calculates the torque contributions of the two engines 1 and 3 while taking

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into account all the inputs and obtaining at the same time the following parametric information: system status, external requests and ~~noises~~ noise. It is now possible to obtain an estimate allowing the vehicle 10 operation to be optimized.

Please replace paragraph [0054] on page 13 with the following rewritten paragraph:

As readily known by those skilled in the art, the fuzzy processor 13 operates on so-called membership functions associated to the inputs. The fuzzy ~~interference~~ inference rules which can be applied by way of example to the membership functions are as follows: